

# Full-Stack Web & Mobile Development + AI/ML Roadmap

## Stage 1: Foundation (1-2 Months)

- HTML, CSS, JS (core): FreeCodeCamp / MDN
- Programming Basics (Python & Java)
- Git & GitHub (Version Control)
- Linux Basics (Ubuntu, CLI Commands)

## Stage 2: Frontend Web Development with React (2 Months)

- React Fundamentals: JSX, Hooks, Components
- TailwindCSS / CSS Modules
- React Router for SPA
- Context API & Redux Toolkit
- Deployment: Vercel / Netlify
- Projects: Portfolio, Blog App, Dashboard UI

## Stage 3: Backend Development (3 Months)

- Node.js + Express: REST APIs, Auth, File Uploads
- Django: MVC, DRF, Admin Panel
- Spring Boot: REST, JPA, Security
- Projects: Auth App, E-commerce API, Task Manager

## Stage 4: Database Mastery (1-1.5 Months)

- PostgreSQL: Joins, Indexing, PgAdmin
- MongoDB: Collections, Mongoose, Aggregation
- Projects: Blog DB, Role-Based App, Geo-location

## Stage 5: Mobile Development (3-4 Months)

- React Native: Expo, Redux, APIs, Deployment
- Kotlin: Android Studio, Jetpack Compose
- Swift: SwiftUI, Navigation, State

- Python (optional): Kivy / BeeWare for small apps
- Projects: Chat App, Booking App, To-Do App

## **Stage 6: AI/ML with Python (3-4 Months)**

- Python for Data Science: Numpy, Pandas
- ML Models: Scikit-Learn, Classification/Regression
- Deep Learning: TensorFlow / PyTorch
- NLP & Image: NLTK, OpenCV
- Deployment: Flask, Streamlit
- Projects: Spam Detector, ChatBot, Face Recognition

## **Stage 7: DevOps, Deployment & Version Control (2 Months)**

- Git + GitHub Workflows
- CI/CD: GitHub Actions, Jenkins
- Hosting: Vercel, Netlify, Heroku, Railway
- Server Setup: Nginx, Gunicorn, Linux
- Docker Basics
- Domain + SSL: Cloudflare, Let's Encrypt